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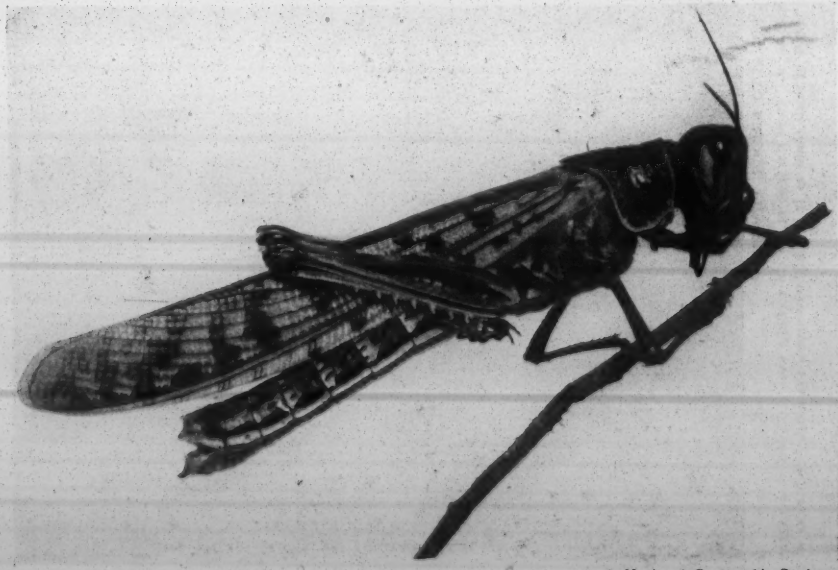

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THE LOCUST, A FAMOUS PLAGUE MAKER

(See Bulletin No. 2)

HOW TO OBTAIN THE BULLETINS

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Expedition Will Go to Unspoiled Savage New Guinea

NEW GUINEA, where an American scientific expedition will go this summer, is one of the few unspoiled savage countries in the world today. The expedition plans to study pygmies and other unknown tribes of the interior. Dutch soldiers will accompany the party, and it is planned to have food supplies delivered by airplane.

Holland, Great Britain and Germany, who divided the island among them—on paper—in 1885, did little more than place a fringe of outposts and missions along the coast. The broad interior has been left largely to the numerous wild tribes who collect human heads instead of stamps, colonial furniture or cigar bands.

This out-of-the-way island, with its thousands of square miles of unexplored territory, has been and continues to be an interesting field to the geographer, the naturalist and trader. Counting Australia as a continent, New Guinea is exceeded in size among the islands only by icy Greenland. It is the largest island in the world which supports a considerable population. The number of the inhabitants is not definitely known but is believed to be nearly one million. The island is 600 miles southeast of the Philippines and in the latitude of the eastern bulge of Brazil. The Equator lies only about twenty miles off its northernmost point.

How New Guinea Compares With U. S. in Area

This huge island of the East Indies covers a greater area than half a dozen or more states of the United States. If it could be laid down with its southeastern point at Norfolk, Va., it would extend across Virginia, West Virginia, Ohio, Indiana, Michigan, Wisconsin, Minnesota, and most of North Dakota, its northwestern point resting near the Canadian border not far from the Montana line. And at its greatest width it would extend from near the northern end of Lake Michigan to a point just south of Terre Haute, Ind. The area is close to 300,000 square miles.

Australia has a keen interest in New Guinea for the island lies about a hundred miles to the north. The strait separating the two lands is dotted with small islands. Since 1906 the southwestern quarter of the island has been a territory of the federal government of Australia. A League of Nations agreement gives Australia control over more than half the island.

The coastal regions of New Guinea—practically the only portions well known—are typical tropical lands. They are not healthful. The mountains of the interior reach a considerable height. One peak in the Dutch portion of the island is more than 500 feet higher than Mt. Whitney, the highest peak in the United States proper.

Where the Spirits Take a Plunge

Where the Papuans, the natives of New Guinea, originated is an unsettled point among scientists. The inhabitants of most of the nearby islands are fair, straight-haired Malays, but the Papuans are black and woolly-haired. They resemble those natives of the far-away Guinea coast of Africa. It was because of this similarity that the name, New Guinea, was given to the island. Some

THE FAMOUS RIALTO BRIDGE, VENICE

For a long time this bridge was the only one which crossed the Grand Canal. Here the laws of the old republic were published at a column which bears the name of "The Hunchback of the Rialto." The bridge itself is almost as much an arcade of small shops as it is a highway across the canal. Both sides of the roadway are lined with these little stores (see Bulletin No. 3).

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The Terrors of a Locust Plague

MEXICO has given the airplane another new task. The government has detailed planes to help combat locusts and grasshoppers.

The annual campaign against locusts begins in Mexico as early as March. The planes will afford rapid transportation of men and supplies to regions where the insect pests appear. By quickly attacking eggs and insects the government hopes to prevent a recurrence of last year's plague which cost heavy crop losses in various parts of the republic.

It is impossible for any one who has not seen a plague of locusts to realize their size and numbers and the horrors of living for weeks at a time in a country where locusts fly into your face, enter your house, and even drop into your food. An eye-witness account of a plague in Algeria occurs in a communication to the National Geographic Society.

"A south wind blew, and the locusts came. They were probably the same sort as in the days of Pharaoh and the plague. At first they came in small swarms. Men, women, and children were enlisted to help battle against this terrible foe, for wherever the locusts alight nothing green remains when they pass on.

On the Locust Battle-line

"The fertile plain, rich vineyards, and verdure are in a few hours turned into a barren desert, with only stumps and tree trunks with the leaves gone and the bark all off.

"It was a curious sight to see hundreds of Arab and Spanish laborers, overseers, and even wealthy French land-owners themselves, and semi-naked Arab children walking abreast in an almost straight line, each beating an old wooden pail, an empty box, a vegetable can, or a drum and blowing a tin trumpet or twirling a policeman's rattle. Each person or child walks in a furrow to himself, and the deafening noise keeps the locusts from settling. Frequently the owners of the plantations build fires and make them smoke to keep away the swarms of locusts.

"When the locusts have alighted late in the afternoon, nothing can drive them off. They take wing the following morning, shortly after sunrise, unless the time has arrived for the female locust to lay her eggs.

"The females excavate holes in the earth two and three inches deep, in which they deposit from sixty-two to sixty-eight eggs, enveloped in a glutinous secretion, shaped somewhat like an ear of wheat.

The Insects Eat, and Eat, and Eat

"Men have to plow and spade every inch of ground, for the nymphs are more destructive than the locusts, and the only way to prevent the eggs from hatching is to uncover them and leave them in the sun.

"The period of incubation is twenty-one days; then tiny creatures—called nymphs—crawl out. They remain quiet for two days and then begin to eat. They eat, and eat, and eat.

"Men with torches burn the nymphs by the millions, but they crawl out of the earth faster than the hand of man can destroy them. The first one to

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of the Papuans have become mixed with Malays so that numerous racial gradations exist.

The Papuan seems to demand a home above ground. Throughout the northern and eastern portion of the islands the houses—many of them vast communal dwellings—are erected on piles. In the southwestern section many of the native tribes live in rude huts built in trees.

Though on the whole as savage as any people in the world, the Papuans are not devoid of good traits. Some of the tribes have a passion for cleanliness and believe that the spirits of their departed tribesmen love to bathe. They therefore carefully construct paths leading from each grave to the sea. Some of the communities near the northeast coast are literally "villages beautiful." They are clean-swept, with streets sanded and planted with ornamental shrubs. In the center are little "plazas" or "palaver spots" where conferences are held. These are paved with flat stones beside which are erected stone pillars to serve as back-rests.

Famous for Its Birds

The animal life of New Guinea, like that of Australia, is queer to Western eyes and represents the fauna of ancient geological ages. With the exception of the pig, which was probably introduced from Asia, all the beasts are either marsupials, having pockets like the opossum, or else lay eggs like birds. But in the number and beauty of its birds New Guinea surpasses most other portions of the earth's surface. It is the home of the gorgeously colored bird-of-paradise and the ingenious and romantic bower-bird. Bird skins make up one of the important exports of the island.

SOME NATIVE CITIZENS OF NEW GUINEA

Papuans are fond of ornaments. The man in the center wears boars' tusks in his nose. The one on the left has feathers in his hair while some of his friends have odd-shaped earrings and bracelets.

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The Lidi: Outlying Charms of Venice

VENICE'S past has been saved again.

Mussolini, premier of Italy, has vetoed a plan for enlarging the railroad bridge from the mainland to permit automobiles and trolley cars to invade the city. Mussolini told the Senate that the beauty of the city must not be damaged by modern devices.

When we think of Venice we think of tinted palaces, canals, and gondolas. There is an outlying section of the city which holds equal charm and which is necessary to the safety of Venice itself.

The relation of the Lidi to Venice can be compared with that of the Rockaways and the island settlements of Jamaica Bay, on the south shore of Long Island, near New York City. Like Jamaica Bay the Venetian lagoon spreads over a vast area of land, barely submerged, with an intricate network of narrow and winding channels to carry the flow of the tide. In places the land has risen sufficiently to form marshy islets.

Lidi Settled First—Venice Afterwards

Just as we might choose the fishing settlements of the Raunt, Broad Channel and Goose Creek today as the site of an American Venice, so the wonder city of the Adriatic was built on the similar islands of Rivoalto, or Rialto. They are protected from the waves of the open sea by the Lidi, as the Jamaica Bay villages are sheltered by the long arms of Rockaway Beach and Coney Island.

On the Lidi were the original settlements that led to the establishment of the city of Venice on the islands of the lagoons. When Attila and his Hun hordes swept down on Europe in 452 many of the inhabitants of the regions farther inland took refuge on the Lidi. From 742 to 809 the seat of government of the region was at Malamocco, a few miles south of the Lido bathing resort on the same island. The encroachments of the waves during the spring and autumn storms, and the possibility of attacks from enemy navies, led, in 809, to a general exodus to the islands on which the present city is built.

Islands Control the Tide to Venice's Benefit

The Lidi today consist of three principal long, sandy islands, divided by narrow water channels, rising scarcely far enough above the water to be distinguished from clouds when seen from a distance. The Litorale, or Beach, of Malamocco is the largest and most important. It contains both the famous bathing resort and the small village of Malamocco. The Litorale of Pellestrina is a strung-out village of fishermen and gardeners. Along it is the great sea-wall, or what is left of it. Although the Adriatic protected Venice from the guns of the heavy-draught vessels of the middle ages, it exacted constant homage in stone walls and breakwaters. The Litorale of St. Erasmo, north of the Lido, is shorter and less important.

At one time there were five ports on the channels between the islands, but that at St. Erasmo was closed to increase the volume of water at the Lido port nearby.

The amount of tidewater that entered the lagoons through the port chan-

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come out takes the lead, and the others follow in swarms many feet wide. They make a curious noise, like the sound of the sea.

"It seems incredible that a thing so small and insignificant is so difficult to destroy. Build great fires and the swarms of crawling, wriggling nymphs will smother them, those in front being burned by millions, and those in the rear pushing on and passing over the burned bodies of the leaders. They will block and fill up a sluggish African stream, and the millions in the rear will pass over unharmed.

Trenches Stop the Army of Locusts

"The government sends troops to aid in the defense, for it means ruin and starvation to thousands of people, besides heavy money losses. Great trenches are dug and the nymphs fall in, and, when three-fourths full, kerosene oil is poured on them and they are set afire. Sometimes earth is thrown on them to a depth of about two feet. They can crawl out of the earth if only covered a few inches, but when deeply covered they smother to death.

"The young locusts are most destructive, selecting the choicest vegetables or tender shoots and green leaves. It takes weeks for them to develop from a tiny, black nymph into a full-sized locust, but they increase rapidly in size, and one can almost see their legs and wings develop.

"Saint John the Baptist is spoken of as having lived on locusts and wild honey. From the earliest times the tribes that dwelt on or near the great deserts of Persia, Arabia, and Africa have eaten dried locusts as food, and they will keep on doing so as long as huge swarms fly out of the desert.

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A FIG TREE JUST BEFORE LOCUSTS ATTACKED IT

Compare this photograph with the photograph of the tree after the locusts have done their work. See illustration following Bulletin No. 3.

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Danzig and Gdingen, Competitors, Swamped with Business

THE Free City of Danzig which was created and is governed by the League of Nations is in difficulty. But this time it is not political difficulty.

Danzig and Gdingen, the nearby Polish port in the making, are in the same quandary Florida found itself in last December; too much freight for too few railroad yards and wharves. Abundant crops in Poland last season and heavy shipments of coal from the Silesian fields to the Baltic states have jammed the facilities of both ports. Gdingen, which is really a port set up in opposition to Danzig on strictly Polish soil, is not yet in condition to take over much of the Free City's burden.

To find the site of Gdingen follow the northward course of the railroad line out of Danzig through Oliva, Zoppot, and across the border of the Danzig free city limits to El Katz. Just north of El Katz is Gdingen.

Danzig is Poland's "General Store"

Following the shore-line instead of the railroad one would come upon a promontory, Aldershorst, some four and one-half miles north of Zoppot, which commands a beautiful view of the bay at Zoppot to the south, and, to the north looks over a similar indentation which is the bay at Gdingen, or Gdynia.

On many a lesser Main Street of America one still finds a "general store," with commodities ranging from soup to sealing wax, from chocolate creams to blue denim overalls. And many a farmer customer never pays cash; he "trades" there literally by bringing in his produce and taking an equivalent amount of the store's stock.

Danzig long has been Poland's great "general store." Geography made the Vistula the main trade street of the country. Down this Polish "Rhine," during centuries past, came lumber and grain for exchange at Danzig with silks and spices of the East. Still the Vistula bears great rafts of grain, rafts which are taken apart for their lumber, so that many boatmen must trudge back up stream. Others find work aboard vessels which carry Brazilian coffee or American oil back to Warsaw. Danzig, on the banks of the Vistula at its delta mouth, seems indissolubly linked to Poland by ties stronger than politics. Whether Poland can make a success out of Gdingen, which she is building to replace Danzig, is a question.

Big ships and steel rails are two factors which may tend to help Gdingen. Danzig proper is not on the open waters of the Bay of Danzig. It lies upon an arm of the Vistula delta. Neufahrwasser is the actual port city. The site of the harbor at Gdingen fronts on the bay and has a natural depth said to be twice that of the Danzig harbor.

An Unhappy Situation

Some picture of the confusion existing in this crowded region where Germany, Poland and the League's Free City are at close quarters appears in the following communication to the National Geographic Society.

"The creation of the Free City of Danzig must have seemed like an ingenious solution to a vexing problem for the weary conferees at Versailles in the spring of 1919. But conceive, if you will, of the City of Galveston cut off

nels bore upon the welfare of the city. If it had ever been more than normal, large vessels could have sailed up to the Grand Canal, as they do today, due to dredging, however. Then Venice would have needed strong forts in place of airy palaces. If it had been any less, the city would have been malarial and unhealthy. Malamocco is the main approach today for vessels of heavy draft. The other ports, Tre Porti, and Chioggia, together are not as important as the Lido.

The Atlantic City of Northern Italy

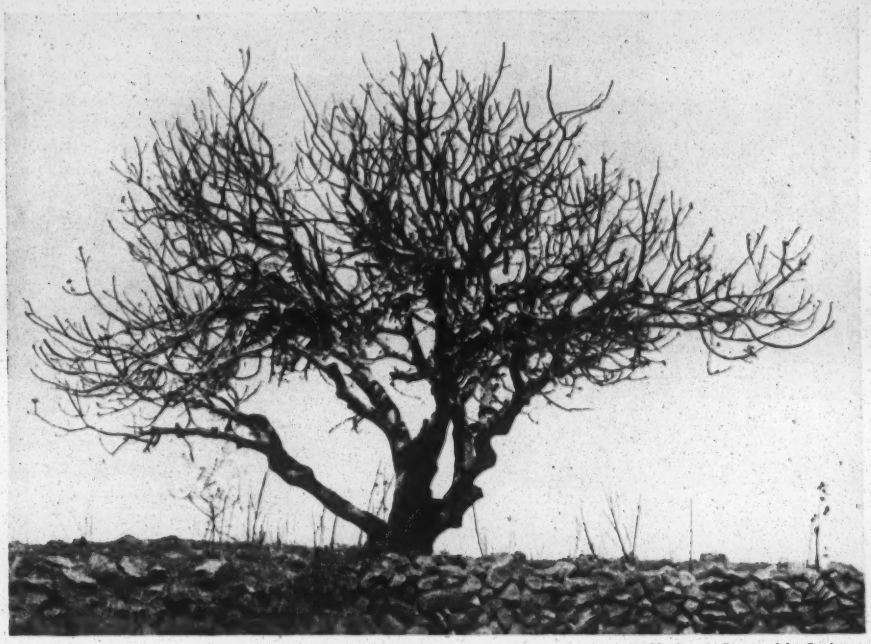
The Lido, however, owes its chief renown to the fine bathing beach facing the sea. Along its windswept sands Byron and Shelley raced their horses before the vogue of sea bathing. Here artists set up their easels to catch that soft and luminous harmony of Venice from a distance.

The parallel drawn between the Lido and Atlantic City, while a close one, is not quite complete. Although the Lido is even more to Venice than Atlantic City is to Philadelphia, it is only in certain sections of its two miles of seafront that the public can bathe. The rest is subdivided with barbed wire, which extends into the sea a distance beyond the endurance of all except the most seasoned swimmers. The barbed wire provides private beaches.

Bulletin No. 3, April 12, 1926.

FOR FURTHER READING

Teachers who wish to use this Bulletin for project or reading assignment will find allied subject matter and illustrations in the following National Geographic Magazine article: "Venice," By Karl Stieler, 42 illustrations, 2 page and fourth-page maps, June, 1915, pp. 587–630.



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A FIG TREE AFTER LOCUSTS HAD FINISHED THEIR MEAL

Locusts eat both leaves and bark. These insects, which are still frequently a curse to the Holy Land, figure prominently in many passages of the Old Testament (see Bulletin No. 2 and illustration following Bulletin No. 2).

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A Cave-in That Revealed a Marvelous Cave

RECENTLY the Smoky River got into the newspapers when a section of its bed near Sharon Springs, Kansas, fell in, leaving a crater 300 feet in diameter and several hundred feet deep.

Cave-ins of this kind are frequent in the western plains where the land is underlaid with limestone or gypsum. A similar cave-in long ago opened a door to the Aladdin-like cave of Carlsbad Cavern in southern New Mexico. Carlsbad Cavern, explored by a National Geographic Society expedition, proved to be one of the largest and most beautiful caves in the world. A considerable exhibit of the astonishing ornaments produced by water in Carlsbad Cavern has been placed in the New National Museum, at Washington, D. C.

Cave "Pearls" an Inch in Diameter

Rare cave "pearls," and the rare cave furnishings made by Nature out of the same sort of oriental alabaster as some of Tutankhamen's vases, are features of the exhibit.

The best cave "pearls" are truly spherical. They are gleaming white with a natural gloss. Carlsbad Cavern is the only cave in the United States which is known to have these unique cave products. The largest spherical "pearls" are about an inch in diameter. Still larger "pearls," like the larger pearls of the sea, are misshapen. One in the exhibit is almost as large as a hen's egg.

Cave "pearls" are found in pools on the floors of certain chambers of Carlsbad Cavern. These pools are formed by water heavily charged with calcium carbonate (limestone in solution) dropping from the ceiling. Tiny fragments of stone fall into the pool and the dissolved rock in the water begins to form about these particles. The splash of the drop imparts a slight motion to the "seed pearl" keeping it from being fastened to the cave floor. Miniature Buddhas are inserted into oysters in China to make pearl Buddhas and in a like way cave "pearls" take on the shape of the original particle. If the fragment be a length of stalactite there grows a polished rod that looks for all the world like peppermint candy.

A Problem Cave Experts Can't Solve

The exhibit lodged in the National Museum for the inspection of the Capital's thousands of visitors, shows the broad range of the work of water in the cave. Here water has made a war club. Again it has woven the flimsiest stone lace. There are a number of pieces that might have come from the famed sea gardens of Bermuda. Agriculture is represented by a yellow limestone "cob of corn."

Some of the cave oddities afford puzzles which have proved too deep for the cave explorers themselves. For example there is the problem of explaining why a stalactite growing regularly downward should suddenly turn at right angles, grow horizontal for a way and then return meekly to Newton's laws of gravitation by doing another "column right." And why should a stalactite after some years of growth downward, start growing in a cone toward the ceiling?

from the rest of Texas by a Mexican 'corridor,' its customs controlled by foreigners.

"Thus, in Danzig 93 per cent of a population of some 400,000 are Germans, isolated on the one side by the Polish corridor, separated on the other from their relatives and business relations in East Prussia by restrictive customs regulations. Everywhere one meets two customs officers: the Danzig 'Free' City agent who takes your money, and the Polish officer who relieves the Danzig agent of it.

"Trains from East Prussia to Germany go through Danzig locked, with Polish guards patrolling the vestibules. It becomes as great an offense to get off a train without permission as to board it without a ticket.

Gdingen Also Aspires to Be Resort

"One of the most amusing aspects of this customs war developed on the shores of the Gulf of Danzig, whither the townsfolk spread during the hot summer afternoons to enjoy a dip in the Baltic or to promenade along the beach.

"Zoppot, the Monte Carlo or Coney Island for Danzigers, boasts a Palace of Sans Souci, which for many years has attracted a host of summer visitors from the Polish hinterland. With a foothold on the Baltic shore, Poland determined to build its own seaside resort. A rival to Zoppot came to life at Gdingen, just across the invisible wall of the corridor. Here the visitor was to be lured and Zoppot humbled by the simple expedient of a costly visé penalty to any Pole whose preference led him to Free City territory.

"But sabotage commenced. Bathers who entered the water innocently enough at Gdingen left it at Zoppot. Guards were stationed at the corridor wall, like "offside" referees at a football game. Finally an overzealous agent shot an Englishman who had inadvertently crossed the line, so the English High Commissioner put an end to firearms."

Bulletin No. 4, April 12, 1926.

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PART OF THE MEDIEVAL FORTIFICATIONS OF DANZIG, SEEN FROM THE AIR

Ramparts, bastions, and wet ditches formerly surrounded the entire city, but 30 years ago they were removed from the north and west sides, the trenches filled in, and the area thus freed was laid out on a spacious plan. Much of the great city retains its picturesque medieval character, however, with narrow, winding streets, lofty and elaborately ornamented gables, and balconied windows.

And how can a Gordian knot and a Medusa head be made in stone? No satisfactory scientific explanation has been advanced for these peculiar contortions.

Stalactites and stalagmites are the limestone twins of caves. Stalactites grow downward from the roof—stalagmites grow upward from the floor. Both types have rings showing annual growths just like trees, a fact which is revealed in cross sections cut, polished and on exhibition. There is a basis, but not with as accurate a measure as found in trees, for calculating the age of the stone icicles, by counting the rings.

Bulletin No. 5, April 12, 1926.

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WOVEN BY WATER

Curtain folds of cave marble hang on the walls of Carlsbad Cavern. So closely does this material resemble fabric that the visitor to the cave is impelled to feel it before he is convinced that it is cold stone.